

Appl. No. 10/780,102

Amendment dated May 9, 2005

Reply to Non-Final Office Action of December 8, 2004

AMENDMENTS TO THE CLAIMS:

This list of claims replaces all prior versions and lists of claims in the application:

1. (currently amended) A dishwasher detergent comprising a builder, ~~and~~ one or more magnesium and/or zinc salt(s) of at least one monomeric and/or polymeric organic acid, excluding zinc ricinoleate, zinc abietate, and zinc oxalate, and 0.1 to 70% by weight of one or more copolymers of:

i) unsaturated carboxylic acids;

ii) monomers containing sulfonic acid groups; and

iii) optionally further ionic or nonionogenic monomers.

2. (original) The dishwasher detergent of claim 1, wherein the monomeric and/or polymeric organic acids are one or more selected from the group consisting of unbranched saturated or unsaturated monocarboxylic acids, branched saturated or unsaturated monocarboxylic acids, saturated and unsaturated dicarboxylic acids, aromatic mono-, di- and tricarboxylic acids, sugar acids, hydroxy acids, oxo acids, amino acids, and polymeric carboxylic acids.

3. (original) The dishwasher detergent claim 1, comprising no magnesium or zinc salts of unbranched or branched, unsaturated or saturated, mono- or polyhydroxylated fatty acids having at least 8 carbon atoms and/or resin acids.

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4. (currently amended) The dishwasher detergent of claim 2, wherein the unbranched saturated or unsaturated monocarboxylic acid(s) are selected from the group consisting of methanoic acid (formic acid), ethanoic acid (acetic acid), propanoic acid (propionic acid), pentanoic acid (valeric acid), hexanoic acid (caproic acid), heptanoic acid (enanthic acid), octanoic acid (caprylic acid), nonanoic acid (pelargonic acid), decanoic acid (capric acid), undecanoic acid, dodecanoic acid (lauric acid), tridecanoic acid, tetradecanoic acid (myristic acid), pentadecanoic acid, hexadecanoic acid (palmitic acid), heptadecanoic acid (margaric acid), octadecanoic acid (stearic acid), eicosanoic acid (arachidic acid), docosanoic acid (behenic acid), tetracosanoic acid (lignoceric acid), hexacosanoic acid (cerotic acid), triacontanoic acid (melissic acid), 9c-hexadecenoic acid (palmitoleic acid), 6c-octadecenoic acid (petroselic acid), 6t-octadecenoic acid (petroselaidic acid), 9c-octadecenoic acid (oleic acid), 9t-octadecenoic acid (elaidic acid), 9c,12c-octadecadienoic acid (linoleic acid), 9t,12t-octadecadienoic acid (linolaidic acid), 9c,12c,15c-octadecatrienoic acid (linolenic acid), and mixtures thereof.

5. (original) The dishwasher detergent of claim 2, wherein the branched saturated or unsaturated monocarboxylic acid(s) are selected from the group consisting of 2-methylpentanoic acid, 2-ethylhexanoic acid, 2-propylheptanoic acid, 2-butyloctanoic acid, 2-pentylnonanoic acid, 2-hexyldecanoic acid, 2-

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heptylundecanoic acid, 2-octyldodecanoic acid, 2-nonyltridecanoic acid, 2-decyltetradecanoic acid, 2-undecylpentadecanoic acid, 2-dodecylhexadecanoic acid, 2-tridecylheptadecanoic acid, 2-tetradecyloctadecanoic acid, 2-pentadecylnonadecanoic acid, 2-hexadecyleicosanoic acid, 2-heptadecylheneicosanoic acid, and mixtures thereof.

6. (original) The dishwasher detergent of claim 2, wherein the unbranched saturated or unsaturated di- or tricarboxylic acid(s) are selected from the group consisting of propanedioic acid (malonic acid), butanedioic acid (succinic acid), pentanedioic acid (glutaric acid), hexanedioic acid (adipic acid), heptanedioic acid (pimelic acid), octanedioic acid (suberic acid), nonanedioic acid (azelaic acid), decanedioic acid (sebacic acid), 2c-butenedioic acid (maleic acid), 2t-butenedioic acid (fumaric acid), 2-butyndedicarboxylic acid (acetylenedicarboxylic acid), and mixtures thereof.

7. (original) The dishwasher detergent of claim 2, wherein the aromatic mono-, di- and tricarboxylic acid(s) are selected from the group consisting of benzoic acid, 2-carboxybenzoic acid (phthalic acid), 3-carboxybenzoic acid (isophthalic acid), 4-carboxybenzoic acid (terephthalic acid), 3,4-dicarboxybenzoic acid (trimellitic acid), 3,5-dicarboxybenzoic acid (trimesionic acid), and mixtures thereof.

8. (original) The dishwasher detergent of claim 2, wherein the sugar acid(s) is (are) selected from the group

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consisting of: gluconic acid, galactonic acid, mannonic acid, fructonic acid, arabinonic acid, xylonic acid, ribonic acid, 2-deoxyribonic acid, alginic acid, and mixtures thereof.

9. (original) The dishwasher detergent of claim 2, wherein the hydroxy acid(s) are selected from the group consisting of hydroxyphenylacetic acid (mandelic acid), 2-hydroxypropionic acid (lactic acid), hydroxysuccinic acid (malic acid), 2,3-dihydroxybutanedioic acid (tartaric acid), 2-hydroxy-1,2,3-propanetricarboxylic acid (citric acid), ascorbic acid, 2-hydroxybenzoic acid (salicylic acid), 3,4,5-trihydroxybenzoic acid (gallic acid), and mixtures thereof.

10. (original) The dishwasher detergent of claim 2, wherein the oxo acid(s) are selected from the group consisting of 2-oxopropionic acid (pyruvic acid), 4-oxopentanoic acid (levulinic acid), and mixtures thereof.

11. (original) The dishwasher detergent of claim 2 wherein the amino acid(s) are selected from the group consisting of alanine, valine, leucine, isoleucine, proline, tryptophan, phenylalanine, methionine, glycine, serine, tyrosine, threonine, cysteine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, histidine, and mixtures thereof.

12. (original) The dishwasher detergent of claim 2, wherein the polymeric carboxylic acid(s) are selected from

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the group consisting of polyacrylic acid, polymethacrylic acid, alkylacrylamide/acrylic acid copolymers, alkylacrylamide/methacrylic acid copolymers, alkylacrylamide/methylmethacrylic acid copolymers, copolymers of unsaturated carboxylic acids, vinyl acetate/crotonic acid copolymers, vinylpyrrolidone/vinyl acrylate copolymers, and mixtures thereof.

13. (original) The dishwasher detergent of claim 1, wherein it comprises at least one zinc salt, but no magnesium salt of an organic acid.

14. (original) The dishwasher detergent of claim 1, wherein it comprises at least one zinc salt of an organic carboxylic acid.

15. (original) The dishwasher detergent of claim 14, wherein it comprises, as zinc salt, zinc oleate, zinc stearate, zinc gluconate, zinc acetate, zinc lactate and/or zinc citrate.

16. (original) The dishwasher detergent of claim 15, wherein it comprises the at least one zinc salt in amounts of from 0.1 to 5% by weight.

17. (original) The dishwasher detergent of claim 16, wherein it comprises the at least one zinc salt in amounts of 0.2 to 4% by weight.

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18. (currently amended) The dishwasher detergent of claim 17, wherein it comprises the at least one zinc salt in amounts of ~~and in particular~~ from 0.4 to 3% by weight.

19. (original) The dishwasher detergent of claim 14, wherein it comprises zinc in oxidized form in amounts of from 0.01 to 1% by weight.

20. (original) The dishwasher detergent of claim 14, wherein it comprises zinc in oxidized form in amounts of from 0.02 to 0.5% by weight.

21. (original) The dishwasher detergent of claim 14, wherein it comprises zinc in oxidized form in amounts of from 0.04 to 0.2% by weight.

22. (original) The dishwasher detergent of claim 1, wherein it comprises one or more surfactants in amounts of from 0.5 to 10% by weight.

23. (original) The dishwasher detergent of claim 22, comprising one or more surfactants in amounts of from 0.75 to 7.5% by weight.

24. (original) The dishwasher detergent of claim 23, comprising one or more surfactants in amounts of from 1.0 to 5% by weight.

25. (original) The dishwasher detergent of claim 22, wherein it has a viscosity of from 500 to 500 000 mPas.

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26. (original) The dishwasher detergent of claim 25, wherein it has a viscosity of from 900 to 200 000 mPas.

27. (original) The dishwasher detergent of claim 26, wherein it has a viscosity of from 1300 to 100 000 mPas.

28. (original) The dishwasher detergent of claim 25, wherein it comprises a nonaqueous solvent.

29. (original) The dishwasher detergent of claim 28, wherein the solvent(s) are selected from the group consisting of polyethylene glycols, polypropylene glycols, glycerol, glycerol carbonate, triacetin, ethylene glycol, propylene glycol, propylene carbonate, hexylene glycol, ethanol, n-propanol, isopropanol, and mixtures thereof.

30. (original) The dishwasher detergent of claim 28, wherein it comprises the nonaqueous solvent in amounts of from 0.1 to 70% by weight.

31. (original) The dishwasher detergent of claim 30, wherein it comprises the nonaqueous solvent in amounts of from 0.5 to 60% by weight.

32. (original) The dishwasher detergent of claim 31, wherein it comprises the nonaqueous solvent in amounts of from 1 to 50% by weight.

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33. (original) The dishwasher detergent of claim 32, wherein it comprises the nonaqueous solvent in amounts of from 2 to 40% by weight

34. (original) The dishwasher detergent of claim 33, wherein it comprises the nonaqueous solvent in amounts of from 2.5 to 30% by weight.

35. (original) The dishwasher detergent of claim 1, wherein it comprises one or more substances selected from the group consisting of acidifying agents, chelating agents, and film-inhibiting polymers.

36. (original) The dishwasher detergent of claim 1, wherein it comprises 1 to 25% by weight of a nonionic surfactant.

37. (original) The dishwasher detergent of claim 36, wherein it comprises 2 to 22.5% by weight of a nonionic surfactant.

38. (original) The dishwasher detergent of claim 37, wherein it comprises 3 to 20% by weight of a nonionic surfactant.

39. (original) The dishwasher detergent of claim 38, wherein it comprises 4 to 17.5% by weight by weight of a nonionic surfactant.

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40. (original) The dishwasher detergent of claim 1, wherein the content of free water is less than 10% by weight.

41. (original) The dishwasher detergent of claim 40, wherein the content of free water is less than 8% by weight.

42. (original) The dishwasher detergent of claim 41, wherein the content of free water is less than 6% by weight.

43. (original) The dishwasher detergent of claim 1, comprising 20 to 60% by weight of one or more water-soluble builders.

44. (original) The dishwasher detergent of claim 43, wherein the one or more water-soluble builders comprise citrates and/or phosphates.

45. (original) The dishwasher detergent of claim 43, wherein the one or more water-soluble builders comprise alkali metal phosphates.

46. (original) The dishwasher detergent of claim 43, wherein the one or more water-soluble builders comprise pentasodium or pentapotassium triphosphate.

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47. (original) The dishwasher detergent of claim 43, wherein it comprises the water-soluble builder(s) in amounts of from 22.5 to 55% by weight.

48. (original) The dishwasher detergent of claim 47, wherein it comprises the water-soluble builder(s) in amounts of from 25 to 50% by weight.

49. (original) The dishwasher detergent of claim 48, wherein it comprises the water-soluble builder(s) in amounts of from 27.5 to 45% by weight.

50. (original) The dishwasher detergent of claim 1, comprising 0.01 to 5% by weight of a polymeric thickener.

51. (original) The dishwasher detergent of claim 50, comprising 0.02 to 4% by weight of the polymeric thickener.

52. (original) The dishwasher detergent of claim 51, comprising 0.05 to 3% by weight of the polymeric thickener.

53. (original) The dishwasher detergent of claim 52, comprising 0.1 to 1.5% by weight of the polymeric thickener.

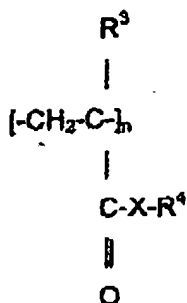
54. (original) The dishwasher detergent of claim 50, wherein the polymeric thickener is selected from the group consisting of polyurethanes, modified polyacrylates, and mixtures thereof.

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55. (original) The dishwasher detergent of claim 50, wherein the polymeric thickener comprises a compound of the formula IV:



IV.

in which R^3 is H or a branched or unbranched C_{1-4} -alk(en)yl radical, X is $N-R^5$ or O, R^4 is an optionally alkoxyated branched or unbranched, optionally substituted C_{8-22} -alk(en)yl radical, R^5 is H or R^4 , and n is a natural number.

56. (original) The dishwasher detergent of claim 1, wherein it comprises hydroxyethylcellulose and/or hydroxypropylcellulose.

57. (original) The dishwasher detergent of claim 56, wherein it comprises the hydroxyethylcellulose and/or hydroxypropylcellulose in amounts of from 0.01 to 4.0% by weight.

58. (original) The dishwasher detergent of claim 57, wherein it comprises the hydroxyethylcellulose and/or hydroxypropylcellulose in amounts of from 0.01 to 3.0% by weight.

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59. (original) The dishwasher detergent of claim 58, wherein it comprises the hydroxyethylcellulose and/or hydroxypropylcellulose in amounts of from 0.01 to 2.0% by weight.

60. (original) The dishwasher detergent of claim 1, wherein the one or more magnesium and/or zinc salts are present in particulate form and in a form formulated with one or more further active and/or builder substances.

61. (original) The dishwasher detergent of claim 60, wherein the particle size of the magnesium and/or zinc salts formulated with one or more active and/or builder substances is 0.1 to 10 mm.

62. (original) The dishwasher detergent of claim 61, wherein the particle size of the magnesium and/or zinc salts formulated with one or more active and/or builder substances is 0.2 to 8 mm.

63. (original) The dishwasher detergent of claim 62, wherein the particle size of the magnesium and/or zinc salts formulated with one or more active and/or builder substances is 0.5 to 5 mm.

64. (original) The dishwasher detergent of claim 60, wherein the particles have a density of from 0.1 to 2.0 g/cm³.

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65. (original) The dishwasher detergent of claim 64, wherein the particles have a density of from 0.2 to 1.6 g/cm³.

66. (original) The dishwasher detergent of claim 65, wherein the particles have a density of from 0.4 to 1.2 g/cm³.

67. (original) The dishwasher detergent of claim 60, wherein the particles comprise the magnesium and/or zinc salts in an amount of from 0.1 to 80% by weight.

68. (original) The dishwasher detergent of claim 67, wherein the particles comprise the magnesium and/or zinc salts in an amount of from 0.2 to 70% by weight.

69. (currently amended) The dishwasher detergent of claim 68, wherein the particles comprise the magnesium and/or zinc salts in an amount of ~~and especially preferably~~ from 0.5 to 60% by weight.

70. (original) The dishwasher detergent of claim 60, wherein the one or more active and/or builder substances comprise active and/or builder substances selected from the group consisting of phosphates, carbonates, hydrogencarbonates, sulfates, silicates, citrates, citric acid, and acetates.

71. (original) The dishwasher detergent of claim 70, wherein the particles comprise the one or more active

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and/or builder substances in amounts of from 20 to 99% by weight.

72. (original) The dishwasher detergent of claim 71, wherein the particles comprise the one or more active and/or builder substances in amounts of from 30 to 98% by weight.

73. (original) The dishwasher detergent of claim 72, wherein the particles comprise the one or more active and/or builder substances in amounts of from 40 to 95% by weight.

74. (original) The dishwasher detergent of claim 60, wherein the one or more active and/or builder substances comprise surfactants and/or polymeric polycarboxylates.

75. (original) The dishwasher detergent of claim 74, wherein the surfactants and/or polymeric polycarboxylates comprise nonionic surfactants and/or polysulfocarboxylates.

76. (original) The dishwasher detergent of claim 60, wherein the particles have a coating.

77. (original) The dishwasher detergent of claim 1, wherein it is packaged as a portion in a water-soluble enclosure.

78. (original) The dishwasher detergent of claim 77, wherein the water-soluble enclosure comprises a sachet

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made of water-soluble film and/or an injection-molded part and/or a blow-molded part and/or a deep-drawn part.

79. (original) The dishwasher detergent of claim 77, wherein the enclosure has a wall thickness of 10 to 5000 μm .

80. (original) The dishwasher detergent of claim 79, wherein the enclosure has a wall thickness of 20 to 3000 μm .

81. (original) The dishwasher detergent of claim 80, wherein the enclosure has a wall thickness of 25 to 2000 μm .

82. (original) The dishwasher detergent of claim 81, wherein the enclosure has a wall thickness of 100 to 1500 μm .

83. (original) The dishwasher detergent of claim 77, wherein the enclosure comprises a film sachet wherein the film which forms the enclosure has a thickness of from 1 to 300 μm .

84. (original) The dishwasher detergent of claim 83, wherein the enclosure comprises a film sachet wherein the film which forms the enclosure has a thickness of from 2 to 200 μm .

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85. (original) The dishwasher detergent of claim 84, wherein the enclosure comprises a film sachet wherein the film which forms the enclosure has a thickness of from 5 to 150 μm .

86. (original) The dishwasher detergent of claim 85, wherein the enclosure comprises a film sachet wherein the film which forms the enclosure has a thickness of from 10 to 100 μm .

87. (original) The dishwasher detergent of claim 77, wherein the enclosure comprises one or more materials selected from the group consisting of acrylic acid-containing polymers, polyacrylamides, oxazoline polymers, polystyrene sulfonates, polyurethanes, polyesters, polyethers, and mixtures thereof.

88. (original) The dishwasher detergent of claim 77, wherein the enclosure comprises one or more water-soluble polymers selected from the group consisting of (optionally acetalated) polyvinyl alcohol (PVAL), polyvinylpyrrolidone, polyethylene oxide, gelatin, cellulose, derivatives thereof, and mixtures thereof.

89. (original) The dishwasher detergent of claim 77, wherein the enclosure comprises a polyvinyl alcohol having a degree of hydrolysis 70 to 100 mol%.

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90. (original) The dishwasher detergent of claim 89, wherein the enclosure comprises a polyvinyl alcohol having a degree of hydrolysis 80 to 90 mol%.

91. (original) The dishwasher detergent of claim 90, wherein the enclosure comprises a polyvinyl alcohol having a degree of hydrolysis 81 to 89 mol%.

92. (original) The dishwasher detergent of claim 91, wherein the enclosure comprises a polyvinyl alcohol having a degree of hydrolysis 82 to 88 mol%.

93. (original) The dishwasher detergent of claim 77, wherein the enclosure comprises a polyvinyl alcohol whose molecular weight is 10,000 to 100,000 gmol^{-1} .

94. (original) The dishwasher detergent of claim 93, wherein the enclosure comprises a polyvinyl alcohol whose molecular weight is 11,000 to 90,000 gmol^{-1} .

95. (original) The dishwasher detergent of claim 94, wherein the enclosure comprises a polyvinyl alcohol whose molecular weight is 12,000 to 80,000 gmol^{-1} .

96. (original) The dishwasher detergent of claim 95, wherein the enclosure comprises a polyvinyl alcohol whose molecular weight is 13,000 to 70,000 gmol^{-1} .

97. (currently amended) A method of inhibiting glass corrosion by treatment with one or more salts of magnesium

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and/or zinc with organic acids, excluding formic acid, acetic acid, gluconic acid, and oxalic acid, in combination with one or more copolymers of:

- i) unsaturated carboxylic acids;
- ii) monomers containing sulfonic acid groups; and
- iii) optionally further ionic or nonionogenic monomers.